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REMARKS

The Advisory Action indicates that the amendments contained in the Response to the Final Office Action filed on January 3, 2002 were not entered.

Claims 1-12 were pending before this Supplemental Response. By the present communication claims 1, 2, 5, 10 and 11 are amended as shown in attached Exhibit A to claim Applicant's invention with greater particularity and no claims have been added or cancelled. The amendments add no new matter, being fully supported by the Specification and pending claims. Applicant submits that the claim amendments do not narrow the claims in any way within the meaning of Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co. Ltd., a/k/a SMC Corporation and SMC Pneumatics, Inc. 234 F.3d 558, 51 U.S.P.Q. 2d 1959 (Fed. Cir. 2000). Accordingly, claims 1-12 are currently pending. It is respectfully submitted that the proposed amendments submitted herewith would place the claims in condition for allowance or at least in better condition for appeal; accordingly, entry of the amendments is respectfully requested.

The Objection to the Claims

Applicants traverse the objection to claims 1-11 as being informal in allegedly reciting a "semicolon" in the phrase "; wherein the polynucleotide encodes a polypeptide having activity as a thermostable phosphatase" allegedly introduced by amendment in claims 1, 2, 5 and 10 in the Response to Office Action mailed herein on May 23, 2001. In amended claims 1, 2 and 5, the semicolon in the phrase at issue has been replaced by a comma or deleted. In addition, claims 1

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and 5 have been amended to clearly refer to the polynucleotides of (a) or (b) in the phrase following the comma. In claim 2, the phrase following the comma has been amended to clearly refer to the polynucleotides of (a) or (b). In addition, Applicants respectfully submit that the subject phrase was not introduced by amendment to claim 10 or claim 11 and claims 10 and 11 do not now contain the subject phrase. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objection to claims 1-11 as allegedly containing the said informality.

The Rejection Under 35 U.S.C. § 112, First Paragraph

Applicants respectfully traverse the rejection of claims 1-11 under 35 U.S.C. § 112, First Paragraph, for containing subject matter for which the Specification allegedly fails to provide an enabling disclosure. Applicants disagree with the Examiner's assertion that "polynucleotides which do not themselves encode a thermostable phosphatase, but merely hybridize to a polynucleotide which encodes a thermostable phosphatase, do not themselves have a defined function" (Office Action, page 3). Similarly Applicants disagree with the Examiner's assertion that polynucleotides which comprise 15 contiguous bases of a polynucleotide that encodes an invention thermostable phosphatase or 30 contiguous amino acids of a polypeptide sequence, such as SEQ ID NO: 28, are not considered to be adequately described with respect to structure (Office Action, page 4). Applicants respectfully submit that the specific function of polynucleotides complementary to a sequence that encodes the invention enzyme and the invention polynucleotide fragments, as presently claimed, is not simply that such polynucleotides hybridize to polynucleotides that encode a thermostable phosphatase. Those of skill the in art will recognize that a polynucleotide complementary to the sequence that encodes an invention

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enzyme provides the sequence of such an enzyme. In addition the complementary sequence and fragments of at least 15 contiguous bases of a nucleotide sequence that encodes an invention enzyme have specific utility and function in an assay as a probe for identifying a nucleic acid sequence that encodes such a phosphatase. All claims have accordingly been amended to explicitly recite this implicit nexus between sequence (structure) and activity (function).

Similarly, Applicants respectfully traverse the Examiner's assertion that the recitation of 30 contiguous amino acids of SEQ ID NO:28 in claim 10 does not define a sequences whose distinct structural limitations can be readily understood by those of skill. Applicants respectfully submit that those of skill in the art would understand that the recitation of 30 contiguous amino acids of SEQ ID NO:28 provides *a plurality of* sequences with phosphatase activity, with each sequence being particularly defined structurally with reference to a contiguous segment of SEQ ID NO:28, which Applicants have provided. The plurality of sequences includes any 30 contiguous amino acids of SEQ ID NO:28 (structural definition) and each has phosphatase activity (functional definition). Thus as presently claimed, the 30 continuous amino acid sequences of claim 10 have a nexus of structure and function.

Accordingly, in view of the above amendments and arguments, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 2, 5, 10 and 11 under 35 U.S.C. § 112, First Paragraph.

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In view of the above amendments and remarks, Applicants respectfully request entry of the amendments and passage of claims 1-12 to allowance. If the Examiner would like to discuss any of the issues raised in the Office Action, Applicants' representative, Lisa A. Haile, J.D., Ph.D., can be reached at (858) 677-1456.

Respectfully submitted,

Date: May 24, 2002



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Enclosure: Exhibit A

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EXHIBIT A

The marked-up version of the amendments

Please amend claims 1, 2, 5, 10 and 11 as follows:

1. (Amended) An isolated polynucleotide selected from [the group consisting of]:
 - (a) a polynucleotide encoding a thermostable phosphatase comprising an amino acid sequence as set forth in SEQ ID NO:28;
 - (b) a polynucleotide which is complementary to the polynucleotide of (a); and
 - (c) a polynucleotide comprising at least 15 contiguous bases [of the] in length and that identifies a polynucleotide of (a)[; wherein the polynucleotide] or (b) that encodes a polypeptide having activity as a thermostable phosphatase by hybridizing thereto.

2. (Twice Amended) An isolated polynucleotide selected from [the group consisting of]:
 - (a) SEQ ID NO:19;
 - (b) SEQ ID NO:19, where T can also be U; and
 - (c) fragments of a) or b) that are at least 15 contiguous bases in length and that [will hybridize to] specifically identify a DNA which encodes [the amino acid sequence of SEQ ID NO:28;] a thermostable phosphatase by hybridizing to the DNA, wherein the isolated polynucleotide of (a) or (b) encodes a thermostable phosphatase, or an enzymatically active fragment thereof.

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5. (Twice Amended) An isolated polynucleotide [encoding a thermostable phosphatase, or an enzymatically active fragment thereof,] comprising a member selected from:
- (a) a polynucleotide having at least 70% identity to [a member selected from the group consisting of:
- [(a)] a polynucleotide encoding an enzyme encoded by the DNA contained in ATCC Deposit No. 97379, wherein said enzyme is obtained from Ammonifex degenesii KC4 and encodes a thermostable phosphatase;
- (b) a polynucleotide complementary to the polynucleotide of (a); and
- (c) a polynucleotide comprising at least 15 contiguous bases [of the] in length and that identify a polynucleotide of (a) or (h) [; wherein the] that encodes a polynucleotide [has] having thermostable phosphatase activity by hybridizing thereto.
10. (Twice Amended) A thermostable phosphatase of which at least a portion is encoded by a polynucleotide of (a) or (b) of claim 1, and which is selected from [the group consisting of]:
- [(a)]c) a thermostable phosphatase comprising an amino acid sequence which is at least 70% identical to an amino acid sequence as set forth in SEQ ID NO:28; and
- [(h)]d) a thermostable phosphatase which comprises at least 30 contiguous amino acid residues of the enzyme of [(a)]c).

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11. (Twice Amended) An enzyme of which at least a portion is encoded by a polynucleotide of (a) or (b) of claim 1, and which is selected from [the group consisting of]:
- ([a]c) a thermostable phosphatase comprising an amino acid sequence selected from the group of amino acid sequences set forth in SEQ ID NO:28; and
 - ([b]d) a thermostable phosphatase which comprises at least 30 contiguous amino acid residues of the enzyme of ([a]c).